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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/975,169	10/11/2001	Erik R. Deutsch	P0743/7001 (SJH)	9099
37462	7590	09/23/2004	EXAMINER	
LOWRIE, LANDO & ANASTASI RIVERFRONT OFFICE ONE MAIN STREET, ELEVENTH FLOOR CAMBRIDGE, MA 02142			CHERRY, EUNCHA P	
			ART UNIT	PAPER NUMBER
			2872	

DATE MAILED: 09/23/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/975,169

Applicant(s)

DEUTSCH ET AL.

Examiner

EUNCHA P. CHERRY

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— The MAILING DATE of this communication appears on the cover sheet with the correspondence address —  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.  
4a) Of the above claim(s) 1-21 and 33-41 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 22-32 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 7/1/02, 5/1/03, 6/27/03  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

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**DETAILED ACTION**

***Election/Restrictions***

1. Claims 1-21 and 33-41 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on June 9, 2003.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 22-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Fleming (US Patent No. 5,867,302).

Fleming discloses a diffractive optical processor having a substrate (Fig. 1, 12), and an axis normal to at least a portion of a surface of the substrate comprising: plurality of first mirror surface suspended over the substrate (Fig. 4a, 38, shows only one segment), at least a portion of the first mirror surfaces normal to the axis, the first mirror surfaces having two ends and displaceable in the direction of the axis; at least

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one support coupled to the first mirror surfaces at a point intermediate the ends of the first mirror surfaces (16); and plurality of second mirror surfaces, at least a portion of the second mirror surface normal to the axis, the second mirror surface optically adjacent to first mirror surface (38'), the second mirror surfaces separated from the first mirror surface a distance in the direction of the axis (see Fig. 4a), plurality of actuation beams (18) support to suspend a corresponding one of the plurality of first mirror surfaces over the substrate, each of the plurality of actuation beams including an actuation region displaceable through the corresponding actuation gap (see the gap in Fig. 4a), a plurality of electrodes (20 and 24), wherein when the voltage is applied the mirror is displaced (see Fig. 4b). Wherein each of the plurality of first mirror surfaces is coupled at the ends, and further wherein when one of the plurality of first mirror surfaces is displaced in the direction of the axis such that the distance is changed, the one of the plurality of first mirror surfaces exhibits a curvature which is caused to be altered by a corresponding at least one of the plurality of supports (see Fig. 4b). The curvature of the one of the plurality of first mirror surfaces is caused to be substantially planar by the corresponding at least one of the plurality of supports (see Fig. 4a). The plurality of mirror

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beams each having a top surface, each of the plurality of mirror beams suspending a corresponding one of the plurality of second mirror surfaces above the substrate and each forming a corresponding beam gap (see the gap in Fig. 4a). At least one of the plurality of actuation beams is coupled to two neighboring mirror beams of the plurality mirror beams, and wherein the at least one actuation beam is suspended above the substrate by the two neighboring mirror beams (see Fig. 4B). The first mirror surfaces is equal to widths of each of the plurality of second mirror surfaces (see 38 and 38'). The diffractive optical processor further comprising a controller electrically coupled to the diffractive optical processor for controlling the displacement of the plurality of first mirror surfaces (see Fig. 1, 100, 110, circuitry).

### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to EUNCHA P. CHERRY whose telephone number is 571-272-2310. The examiner can normally be reached on M-F 6:30-4:00, alternate Fridays off.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW DUNN can be reached on 571-272-2312. The fax phone number for the

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organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EUNCHA P. CHERRY  
Primary Examiner  
Art Unit 2872



**EUNCHA P. CHERRY**  
**PRIMARY EXAMINER**  
~~PRIMARY EXAMINER~~  
~~EUNCHA P. CHERRY~~